

## Supplementary Information

**Supplementary Table 1: PISA countries**

<b>East Asia and Pacific</b>		<b>Europe and Central Asia</b>	
<i>Country</i>	<i>N</i>	<i>Country</i>	<i>N</i>
Australia	9,901	Albania	5,487
Brunei Darussalam	4,563	Austria	5,398
Indonesia	9,202	Belarus	4,839
Japan	4,849	Belgium	6,641
Korea	5,306	Bosnia and Herzegovina	2,390
Malaysia	5,610	Bulgaria	4,230
New Zealand	4,970	Croatia	4,606
Philippines	5,985	Czech Republic	5,774
Singapore	4,949	Denmark	5,866
Thailand	7,601	Estonia	4,091
Vietnam	4,725	Finland	4,536
<b>Latin America and the Caribbean</b>		France	4,875
<i>Country</i>	<i>N</i>	Georgia	4,016
Argentina	10,351	Germany	3,745
Brazil	7,609	Greece	5,354
Chile	5,512	Hungary	4,341
Colombia	5,775	Iceland	2,401
Costa Rica	5,215	Ireland	4,394
Dominican Republic	4,175	Italy	9,591
Mexico	5,892	Kazakhstan	10,066
Panama	5,017	Kosovo	3,083
Peru	5,382	Latvia	3,935
Uruguay	4,523	Lithuania	4,508
<b>Middle East and North Africa</b>		Luxembourg	3,870
<i>Country</i>	<i>N</i>	Moldova	4,421
Israel	5,320	Montenegro	4,130
Jordan	6,690	Netherlands	3,891
Lebanon	3,008	Norway	4,096
Malta	2,767	Poland	3,870
Morocco	5,212	Portugal	4,745
Qatar	8,662	Romania	4,079
Saudi Arabia	2,257	Russian Federation	5,609
United Arab Emirates	13,279	Serbia	5,536
<b>North America</b>		Slovak Republic	4,997
<i>Country</i>	<i>N</i>	Slovenia	4,756
Canada	17,004	Spain	30,664
United States	2,892	Sweden	4,204
		Switzerland	4,797
		Turkey	4,000
		Ukraine	4,234
		United Kingdom	10,408

**Supplementary Table 2: Estimated associations between pre-primary programme attendance and mathematics test scores at age 15**

Variables	Lower middle income	Upper middle income	High income	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	North America
<b>Pre-primary attendance</b>								
One	0.125*** (0.013)	0.041*** (0.007)	0.137*** (0.007)	0.187*** (0.013)	0.046*** (0.007)	0.137*** (0.012)	0.148*** (0.013)	0.109*** (0.018)
Two or more	0.260*** (0.012)	0.146*** (0.006)	0.273*** (0.007)	0.321*** (0.012)	0.179*** (0.006)	0.254*** (0.012)	0.288*** (0.01)	0.165*** (0.017)
Female	0.042*** (0.008)	-0.032*** (0.004)	-0.051*** (0.003)	0.017*** (0.007)	-0.053*** (0.003)	-0.114*** (0.006)	0.071*** (0.007)	-0.056*** (0.011)
Age	0.088*** (0.015)	0.114*** (0.007)	0.201*** (0.006)	0.163*** (0.012)	0.165*** (0.006)	0.165*** (0.010)	0.146*** (0.013)	0.183*** (0.020)
<b>Wealth quintile (omitted category is Q1)</b>								
Q2	0.336*** (0.012)	0.218*** (0.006)	0.267*** (0.008)	0.288*** (0.011)	0.204*** (0.006)	0.223*** (0.007)	0.211*** (0.013)	0.274*** (0.041)
Q3	0.467*** (0.015)	0.328*** (0.007)	0.379*** (0.008)	0.487*** (0.013)	0.290*** (0.007)	0.356*** (0.009)	0.331*** (0.014)	0.438*** (0.039)
Q4	0.572*** (0.019)	0.414*** (0.008)	0.449*** (0.008)	0.620*** (0.013)	0.352*** (0.007)	0.489*** (0.011)	0.426*** (0.014)	0.491*** (0.038)
Q5	0.606*** (0.029)	0.465*** (0.010)	0.422*** (0.008)	0.660*** (0.014)	0.347*** (0.008)	0.668*** (0.014)	0.270*** (0.014)	0.475*** (0.037)
<b>Father's education (omitted category is pre-primary)</b>								
Primary	-0.027 (0.022)	0.058*** (0.014)	0.171*** (0.016)	0.028 (0.023)	0.231*** (0.019)	0.068*** (0.014)	0.003 (0.025)	0.018 (0.124)
Lower secondary	-0.001 (0.021)	0.085*** (0.013)	0.210*** (0.014)	0.073*** (0.023)	0.268*** (0.017)	0.097*** (0.013)	-0.004 (0.022)	0.000 (0.117)
Upper secondary	0.151*** (0.027)	0.229*** (0.015)	0.320*** (0.015)	0.154*** (0.027)	0.415*** (0.017)	0.187*** (0.018)	0.145*** (0.025)	-0.072 (0.116)
Post-secondary, non-tertiary	0.151*** (0.020)	0.181*** (0.013)	0.340*** (0.014)	0.172*** (0.022)	0.418*** (0.017)	0.185*** (0.013)	0.090*** (0.021)	0.147 (0.113)
Short-cycle tertiary	0.091*** (0.024)	0.176*** (0.014)	0.340*** (0.014)	0.222*** (0.025)	0.386*** (0.017)	0.155*** (0.015)	0.140*** (0.023)	0.198* (0.114)
Bachelor's or equivalent	0.161*** (0.022)	0.320*** (0.013)	0.534*** (0.014)	0.378*** (0.023)	0.553*** (0.017)	0.270*** (0.014)	0.369*** (0.021)	0.395*** (0.113)

Variables	Lower middle income	Upper middle income	High income	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	North America
<b>Mother's education (omitted category is pre-primary)</b>								
Primary	-0.067*** (0.022)	0.035** (0.014)	0.092*** (0.016)	-0.028 (0.025)	0.161*** (0.019)	0.049*** (0.015)	-0.006 (0.023)	-0.352** (0.139)
Lower secondary	-0.106*** (0.021)	0.033** (0.014)	0.087*** (0.015)	-0.026 (0.024)	0.158*** (0.017)	0.067*** (0.015)	-0.113*** (0.020)	-0.365*** (0.131)
Upper secondary	0.044 (0.029)	0.106*** (0.016)	0.190*** (0.015)	0.063** (0.030)	0.285*** (0.018)	0.111*** (0.019)	-0.027 (0.025)	-0.362*** (0.130)
Post-secondary, non-tertiary	-0.024 (0.020)	0.142*** (0.014)	0.284*** (0.014)	0.028 (0.023)	0.361*** (0.017)	0.214*** (0.014)	0.016 (0.019)	-0.133 (0.127)
Short-cycle tertiary	-0.022 (0.024)	0.162*** (0.014)	0.306*** (0.015)	0.110*** (0.026)	0.371*** (0.017)	0.201*** (0.016)	0.061*** (0.022)	-0.088 (0.127)
Bachelor's or equivalent	-0.018 (0.022)	0.255*** (0.014)	0.432*** (0.014)	0.110*** (0.024)	0.521*** (0.017)	0.247*** (0.015)	0.133*** (0.020)	0.016 (0.127)
Age of school entry	-0.172*** (0.006)	-0.141*** (0.003)	-0.152*** (0.002)	-0.146*** (0.004)	-0.158*** (0.003)	-0.149*** (0.003)	-0.173*** (0.004)	-0.060*** (0.006)
Observations	31,661	140,459	258,144	60,007	241,195	57,928	50,680	20,454
R-squared	0.274	0.237	0.264	0.443	0.223	0.300	0.224	0.114

Notes: Standard errors in parentheses. Based on the 2018 PISA data. Estimates represent standardized increases in normalized test scores.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Supplementary Table 3: Estimated associations between pre-primary programme attendance and science test scores at age 15**

Variables	Lower middle income	Upper middle income	High income	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	North America
<b>Pre-primary attendance</b>								
One	0.093*** (0.013)	0.025*** (0.007)	0.134*** (0.008)	0.186*** (0.013)	0.017** (0.008)	0.158*** (0.013)	0.133*** (0.013)	0.149*** (0.019)
Two or more	0.211*** (0.01)	0.129*** (0.006)	0.257*** (0.007)	0.303*** (0.013)	0.153*** (0.006)	0.277*** (0.013)	0.251*** (0.012)	0.186*** (0.019)
Female	0.066*** (0.008)	0.055*** (0.004)	0.037*** (0.003)	0.028*** (0.007)	0.034*** (0.003)	-0.044*** (0.006)	0.231*** (0.008)	0.023* (0.013)
Age	0.072*** (0.014)	0.114*** (0.007)	0.186*** (0.006)	0.127*** (0.012)	0.153*** (0.006)	0.184*** (0.011)	0.134*** (0.013)	0.188*** (0.022)
<b>Wealth quintile (omitted category is Q1)</b>								
Q2	0.265*** (0.011)	0.215*** (0.005)	0.266*** (0.009)	0.245*** (0.011)	0.192*** (0.007)	0.214*** (0.008)	0.197*** (0.014)	0.294*** (0.045)
Q3	0.383*** (0.014)	0.306*** (0.006)	0.361*** (0.009)	0.422*** (0.013)	0.259*** (0.007)	0.336*** (0.010)	0.315*** (0.014)	0.455*** (0.043)
Q4	0.471*** (0.018)	0.374*** (0.008)	0.414*** (0.009)	0.541*** (0.014)	0.303*** (0.007)	0.442*** (0.012)	0.400*** (0.015)	0.493*** (0.042)
Q5	0.475*** (0.028)	0.395*** (0.010)	0.359*** (0.009)	0.552*** (0.014)	0.271*** (0.008)	0.580*** (0.015)	0.214*** (0.014)	0.457*** (0.041)
<b>Father's education (omitted category is pre-primary)</b>								
Primary	0.014 (0.021)	0.070*** (0.014)	0.148*** (0.017)	0.019 (0.024)	0.234*** (0.019)	0.063*** (0.014)	0.020 (0.025)	-0.181 (0.137)
Lower secondary	0.001 (0.020)	0.080*** (0.013)	0.205*** (0.015)	0.027 (0.023)	0.272*** (0.018)	0.082*** (0.014)	0.025 (0.023)	0.010 (0.129)
Upper secondary	0.188*** (0.025)	0.235*** (0.015)	0.329*** (0.016)	0.191*** (0.028)	0.426*** (0.018)	0.173*** (0.019)	0.143*** (0.026)	0.029 (0.129)
Post-secondary, non-tertiary	0.170*** (0.019)	0.198*** (0.013)	0.346*** (0.015)	0.166*** (0.022)	0.431*** (0.017)	0.194*** (0.014)	0.093*** (0.021)	0.189 (0.125)
Short-cycle tertiary	0.115*** (0.022)	0.208*** (0.014)	0.351*** (0.015)	0.233*** (0.025)	0.412*** (0.018)	0.153*** (0.016)	0.184*** (0.023)	0.187 (0.126)
Bachelor's or equivalent	0.154*** (0.021)	0.330*** (0.013)	0.526*** (0.015)	0.356*** (0.023)	0.556*** (0.017)	0.271*** (0.015)	0.397*** (0.022)	0.370*** (0.126)

Variables	Lower middle income	Upper middle income	High income	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	North America
<b>Mother's education (omitted category is pre-primary)</b>								
Primary	-0.105*** (0.021)	0.059*** (0.014)	0.117*** (0.018)	-0.022 (0.025)	0.216*** (0.020)	0.059*** (0.016)	-0.027 (0.024)	-0.484*** (0.154)
Lower secondary	-0.142*** (0.020)	0.040*** (0.014)	0.110*** (0.016)	-0.033 (0.025)	0.189*** (0.018)	0.072*** (0.015)	-0.121*** (0.020)	-0.417*** (0.145)
Upper secondary	0.044 (0.028)	0.140*** (0.015)	0.202*** (0.016)	0.085*** (0.030)	0.313*** (0.018)	0.163*** (0.020)	-0.064** (0.026)	-0.437*** (0.144)
Post-secondary, non-tertiary	-0.027 (0.019)	0.161*** (0.013)	0.297*** (0.015)	0.044* (0.024)	0.391*** (0.018)	0.214*** (0.015)	-0.008 (0.020)	-0.229 (0.140)
Short-cycle tertiary	-0.013 (0.023)	0.181*** (0.014)	0.329*** (0.016)	0.134*** (0.026)	0.411*** (0.018)	0.212*** (0.017)	0.011 (0.022)	-0.179 (0.141)
Bachelor's or equivalent	-0.022 (0.021)	0.277*** (0.014)	0.449*** (0.015)	0.134*** (0.025)	0.543*** (0.018)	0.309*** (0.016)	0.111*** (0.020)	-0.080 (0.140)
Age of school entry	-0.149*** (0.005)	-0.127*** (0.003)	-0.149*** (0.002)	-0.146*** (0.004)	-0.146*** (0.003)	-0.141*** (0.003)	-0.161*** (0.004)	-0.072*** (0.007)
Observations	31,661	140,459	258,144	60,007	241,195	57,928	50,680	20,454
R-squared	0.296	0.209	0.215	0.406	0.225	0.285	0.193	0.072

Notes: Standard errors in parentheses. Based on the 2018 PISA data. Estimates represent standardized increases in normalized test scores.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Supplementary Table 4: Estimated associations between pre-primary programme attendance and mathematics and science test scores including stratum fixed effects**

VARIABLES	Stratum fixed effects		School fixed effects	
	Mathematics	Science	Mathematics	Science
One	0.0593*** (0.00483)	0.0463*** (0.00503)	0.0346*** (0.00443)	0.0237*** (0.00467)
Two or more	0.152*** (0.00430)	0.129*** (0.00448)	0.0893*** (0.00398)	0.0682*** (0.00420)

Notes: Based on the 2018 PISA data. Estimates represent standardized increases in normalized test scores. All empirical models control for child sex and age, age of school entry, fathers' and mothers' schooling attainment, household socioeconomic status, and stratum fixed effects, which capture geographic areas or school type. Numbers displayed are linear estimates with standard errors in parentheses.

**Supplementary Table 5: Cost of inaction in terms of % of GDP loss of not reaching universal coverage for pre-primary school by countries grouped by World Bank income groups with sensitivity analysis to changes in the value of key parameters**

Group	Country	2018 Gross Enrollment Rates (%) <sup>a</sup>	COI (% GDP)	Sensitivity analysis					
				i=7	i=6	d=4	d=5	cost +10%	
High income	Antigua and Barbuda	0.7	2.0	1.7	1.5	1.5	1.1	2.0	2.0
	Australia	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Austria	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Bahamas, The	0.3	5.3	4.6	4.0	3.9	2.9	5.3	5.3
	Bahrain	0.5	4.0	3.5	3.0	2.9	2.2	4.0	4.0
	Barbados	0.9	0.8	0.7	0.6	0.6	0.4	0.8	0.8
	Belgium	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Brunei Darussalam	0.6	3.5	3.0	2.6	2.5	1.9	3.4	3.4
	Chile	0.8	1.5	1.3	1.1	1.1	0.8	1.5	1.5
	Croatia	0.7	1.9	1.7	1.4	1.4	1.0	1.9	1.9
	Cyprus	0.8	1.6	1.4	1.2	1.2	0.9	1.6	1.6
	Denmark	1.0	0.2	0.2	0.2	0.2	0.1	0.2	0.2
	Estonia	0.9	0.6	0.5	0.4	0.4	0.3	0.6	0.6
	Finland	0.8	1.1	1.0	0.8	0.8	0.6	1.1	1.1
	France	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Germany	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Greece	0.7	1.4	1.2	1.0	1.0	0.7	1.4	1.4
	Hong Kong SAR, China	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hungary	0.8	1.1	1.0	0.8	0.8	0.6	1.1	1.1
	Iceland	0.9	0.4	0.4	0.3	0.3	0.2	0.4	0.4
	Ireland	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Israel	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Italy	0.9	0.3	0.3	0.2	0.2	0.2	0.3	0.3
	Korea, Rep.	0.9	0.3	0.3	0.2	0.2	0.2	0.3	0.3
	Kuwait	0.6	2.7	2.3	2.0	2.0	1.4	2.7	2.7
	Latvia	1.0	0.3	0.3	0.2	0.2	0.2	0.3	0.3
	Lithuania	0.9	1.0	0.9	0.7	0.7	0.5	1.0	1.0
	Luxembourg	0.9	0.5	0.4	0.4	0.4	0.3	0.5	0.5
	Malta	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Netherlands	0.9	0.4	0.3	0.3	0.3	0.2	0.4	0.4
	New Zealand	0.9	0.7	0.6	0.5	0.5	0.4	0.7	0.7
	Norway	1.0	0.3	0.3	0.2	0.2	0.2	0.3	0.3
	Oman	0.5	4.5	3.9	3.3	3.3	2.4	4.5	4.5
	Panama	0.6	4.9	4.3	3.7	3.6	2.6	4.9	4.9
	Poland	0.8	1.4	1.2	1.0	1.0	0.7	1.4	1.4
	Portugal	0.9	0.3	0.3	0.2	0.2	0.2	0.3	0.3
	Qatar	0.6	2.6	2.2	1.9	1.9	1.4	2.6	2.6
	Saudi Arabia	0.2	7.5	6.5	5.6	5.5	4.0	7.5	7.5
	Seychelles	1.0	0.6	0.5	0.5	0.5	0.3	0.6	0.6
	Slovak Republic	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Spain	0.9	0.4	0.4	0.3	0.3	0.2	0.4	0.4
	Sweden	1.0	0.3	0.2	0.2	0.2	0.2	0.3	0.3
	Switzerland	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	United Arab Emirates	0.8	1.2	1.1	0.9	0.9	0.7	1.2	1.2
	United Kingdom	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	United States	0.7	2.0	1.8	1.5	1.5	1.1	2.0	2.0
	Uruguay	0.9	0.6	0.5	0.4	0.4	0.3	0.6	0.6
	<b>High income median</b>	<b>0.9</b>	<b>0.6</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>	<b>0.3</b>	<b>0.6</b>	<b>0.6</b>
Upper middle income	Albania	0.8	1.8	1.6	1.3	1.3	0.9	1.8	1.8
	Argentina	0.8	2.4	2.1	1.8	1.8	1.3	2.4	2.4
	Armenia	0.4	5.8	5.0	4.2	4.1	2.9	5.7	5.6
	Azerbaijan	0.4	5.5	4.8	4.0	3.9	2.7	5.5	5.4
	Belarus	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Belize	0.5	5.3	4.6	3.8	3.7	2.6	5.3	5.2

Group	Country	2018 Gross Enrollment Rates (%) <sup>a</sup>	COI (% GDP)	Sensitivity analysis				
				i=7	i=6	d=4	d=5	cost +10%
	Brazil	1.0	0.3	0.3	0.2	0.2	0.2	0.3
	Bulgaria	0.8	1.5	1.3	1.1	1.1	0.8	1.5
	China	0.9	1.2	1.0	0.9	0.8	0.6	1.2
	Costa Rica	1.0	0.2	0.2	0.1	0.1	0.1	0.2
	Dominican Republic	0.5	6.1	5.3	4.5	4.4	3.2	6.1
	Ecuador	0.7	3.2	2.8	2.3	2.3	1.6	3.2
	Grenada	1.0	0.0	0.0	0.0	0.0	0.0	0.0
	Guatemala	0.5	7.0	6.1	5.1	5.0	3.5	7.0
	Iran, Islamic Rep.	0.5	4.6	4.0	3.3	3.3	2.3	4.5
	Jamaica	0.7	2.7	2.3	1.9	1.9	1.4	2.6
	Jordan	0.3	10.2	8.8	7.4	7.2	5.1	10.1
	Kazakhstan	0.6	5.5	4.8	4.0	3.9	2.9	5.4
	Malaysia	1.0	0.1	0.1	0.1	0.1	0.1	0.1
	Maldives	0.9	1.3	1.1	1.0	0.9	0.7	1.3
	Mauritius	1.0	0.1	0.1	0.1	0.1	0.1	0.1
	Mexico	0.7	2.9	2.5	2.1	2.1	1.5	2.9
	Montenegro	0.7	2.2	1.9	1.6	1.6	1.2	2.2
	Namibia	0.3	9.6	8.3	7.0	6.8	4.9	9.5
	North Macedonia	0.4	4.4	3.8	3.3	3.2	2.3	4.4
	Paraguay	0.4	6.9	6.0	5.1	5.0	3.6	6.9
	Peru	1.0	0.0	0.0	0.0	0.0	0.0	0.0
	Romania	0.8	1.1	1.0	0.8	0.8	0.6	1.1
	Russian Federation	0.9	1.0	0.9	0.8	0.7	0.5	1.0
	Samoa	0.5	7.8	6.7	5.6	5.5	3.9	7.7
	Serbia	0.6	3.5	3.0	2.6	2.5	1.8	3.5
	South Africa	0.2	8.3	7.2	6.1	5.9	4.3	8.3
	St. Lucia	0.7	1.8	1.5	1.3	1.3	0.9	1.8
	Suriname	0.9	1.6	1.4	1.2	1.1	0.8	1.6
	Thailand	0.8	1.5	1.3	1.1	1.1	0.8	1.5
	Turkey	0.3	7.5	6.5	5.5	5.4	4.0	7.4
	<b>Upper middle income median</b>	<b>0.7</b>	<b>2.5</b>	<b>2.2</b>	<b>1.9</b>	<b>1.8</b>	<b>1.3</b>	<b>2.5</b>
Lower middle income	Angola	0.4	9.2	7.9	6.6	6.4	4.5	9.1
	Bangladesh	0.4	7.8	6.6	5.5	5.4	3.7	7.6
	Bhutan	0.3	6.9	6.0	5.0	4.9	3.5	6.8
	Bolivia	0.7	3.8	3.3	2.8	2.7	1.9	3.8
	Cabo Verde	0.7	3.6	3.1	2.6	2.5	1.8	3.5
	Cambodia	0.2	10.6	9.0	7.4	7.2	4.8	10.4
	Cameroon	0.3	10.5	8.8	7.2	7.0	4.5	10.2
	Comoros	0.2	4.8	3.8	2.8	2.7	1.2	4.5
	Cote d'Ivoire	0.1	16.1	13.6	11.2	10.9	7.3	15.7
	Djibouti	0.1	8.3	7.1	5.9	5.7	4.0	8.2
	Egypt, Arab Rep.	0.3	12.1	10.4	8.7	8.5	6.0	12.0
	El Salvador	0.7	3.3	2.9	2.4	2.3	1.7	3.3
	Ghana	1.1	0.0	0.0	0.0	0.0	0.0	0.0
	Honduras	0.4	6.2	5.3	4.4	4.3	3.0	6.1
	India	0.1	11.0	9.5	7.9	7.7	5.4	10.9
	Indonesia	0.6	4.9	4.3	3.6	3.5	2.5	4.9
	Kenya	0.8	4.6	4.0	3.3	3.2	2.2	4.6
	Lao PDR	0.5	9.0	7.8	6.5	6.4	4.5	8.9
	Lesotho	0.4	6.7	5.6	4.5	4.3	2.7	6.5
	Moldova	0.9	1.1	1.0	0.8	0.8	0.6	1.1
	Mongolia	0.9	2.2	1.9	1.6	1.6	1.1	2.2
	Morocco	0.5	6.1	5.3	4.4	4.3	3.1	6.1
	Papua New Guinea	0.4	6.0	5.1	4.3	4.1	2.8	5.9
	Philippines	0.8	3.0	2.6	2.2	2.1	1.5	3.0
	Senegal	0.2	16.0	13.6	11.1	10.8	7.2	15.7
	Solomon Islands	0.8	2.9	2.5	2.1	2.0	1.4	2.9
	Sudan	0.5	2.0	1.4	0.7	0.6	-0.4	1.7
	Timor-Leste	0.2	18.2	15.5	12.8	12.5	8.5	17.9

Group	Country	2018 Gross Enrollment Rates (%) <sup>a</sup>	COI (% GDP)	Sensitivity analysis				
				i=7	i=6	d=4	d=5	cost +10%
	Tunisia	0.4	5.0	4.3	3.6	3.5	2.5	5.0
	Uzbekistan	0.3	10.2	8.7	7.2	7.0	4.7	10.0
	Vietnam	1.0	0.0	0.0	0.0	0.0	0.0	0.0
	Zambia	0.1	10.4	8.6	6.8	6.6	3.9	10.0
	<b>Lower income median</b>	<b>0.4</b>	<b>6.2</b>	<b>5.3</b>	<b>4.4</b>	<b>4.3</b>	<b>3.0</b>	<b>6.1</b>
Low income	Benin	0.3	8.5	7.0	5.5	5.3	3.0	8.1
	Burkina Faso	0.0	13.9	11.1	8.3	8.0	3.8	13.1
	Burundi	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	Central African Republic	0.0	7.5	5.0	2.6	2.2	-1.4	6.2
	Chad	0.0	19.3	15.8	12.2	11.8	6.5	18.4
	Gambia, The	0.4	7.3	5.8	4.2	4.0	1.7	6.8
	Liberia	1.3	0.0	0.0	0.0	0.0	0.0	0.0
	Madagascar	0.4	3.5	2.3	1.1	0.9	-0.9	2.9
	Mali	0.1	14.6	11.9	9.2	8.9	4.9	13.9
	Nepal	0.9	1.3	1.0	0.8	0.8	0.5	1.2
	Niger	0.1	12.4	8.8	5.3	4.8	-0.5	10.8
	Rwanda	0.2	11.1	9.1	7.0	6.7	3.7	10.6
	Sierra Leone	0.1	6.0	4.1	2.2	2.0	-0.8	5.1
	Tajikistan	0.1	8.3	6.5	4.7	4.5	1.8	7.7
	Tanzania	0.4	10.1	8.4	6.7	6.5	4.0	9.8
	Togo	0.2	9.7	7.7	5.6	5.4	2.4	9.0
	Uganda	0.1	15.3	12.3	9.3	8.9	4.5	14.5
	Yemen, Rep.	0.0	10.9	8.8	6.8	6.5	3.4	10.3
	<b>Low income median</b>	<b>0.1</b>	<b>9.1</b>	<b>7.3</b>	<b>5.4</b>	<b>5.0</b>	<b>2.1</b>	<b>8.6</b>

<sup>a</sup>Pre-Primary Gross Enrolment Rates in 2018 (2017 if 2018 not available). GER = total enrolments of all ages relative to number of children of pre-primary school age, so it may exceed 100. Source: UNESCO Institute for Statistics (UIS). <http://data UIS.unesco.org/>

NOTES: pre-primary school attendance is assumed to have an impact on adult earnings of 8%. Children are assumed to enter the labour market at age 18 and benefits are captured during 45 years. Discount rate=3%. Programme costs are assumed to be \$1,300, \$912, \$696 and \$654, respectively, for the four country groups. The SDG 4.2 targets are assumed to be enrolment rates equal to the maximum of 100% and the GER for 2018.